The Poultry Research Centre
A leader in poultry learning and research www.poultryresearchcentre.com

Camelina sativa meal as a feedstuff for laying hens: I. Effects on layer performance

Matt Oryschak[1] and Eduardo Beltranena[1,2]

[1]Alberta Agriculture and Rural Development; [2]Department of Agricultural, Food and Nutritional Science - University of Alberta

Background

Camelina sativa (a.k.a. false flax) is an oilseed (~37% oil) belonging to the *Brassica* family and is closely related to mustard, canola and rapeseed. There is recent interest as a food source of omega-3 fatty acids, as well as for bio-diesel production.

The major obstacle to expansion of camelina production and use is that the meal and oil resulting from crushing are not registered in Schedule IV of the Canadian *Feeds Act* as a feedstuff for livestock or poultry. To obtain registration as a feedstuff, the SAFETY and EFFICACY of the product must first be demonstrated. Camelina is known to contain anti-nutritional compounds which could adversely impact the health and/or productivity of poultry. These include glucosinolates, erucic acid, sinapine and condensed tannins.

The objective of the present study therefore was to determine the effect of increasing dietary inclusion of expeller-pressed *Camelina sativa* meal on performance, egg quality, egg fatty acid profiles and signs of toxicity. This poster reports the results relating to layer performance.

Our approach

In a 36-week experiment, 288 laying hens housed 4 to a test cage (668 cm^2/hen) in a commercial battery were assigned to one of 6 dietary regimens. Dietary regimens consisted of complete diets containing 0, 5 10, 15, 20 or 25% expeller-pressed camelina meal. Diets within each layer phase were formulated to contain the same level of dietary energy (AME) and similar levels of digestible amino acids, crude protein and crude fat across all treatments.

Egg production (#/d) for each test cage was measured daily; individual egg weight and egg mass production determined weekly; and feed consumption and feed efficiency determined at 4-week intervals throughout the study.

What we observed

Increasing camelina meal inclusion linearly reduced the rate of weight gain in hens, though the magnitude of the difference among inclusion levels declined over time (**Figure 1a**).

In most phases of the study there was no effect of dietary camelina meal inclusion on feed intake (**Figure 1b**) or feed efficiency (**Figure 1c**). For the overall 36-week study however, there was a linear reduction in both feed intake and feed efficiency with increasing dietary inclusion of expeller-pressed camelina meal.

Average egg weight declined linearly with increasing camelina meal inclusion in virtually every week of the study (**Figure 1d**). In contrast, lay percentage and egg mass production were generally not affected by dietary regimen after week 5 of the study (**Figure 1e,f**).

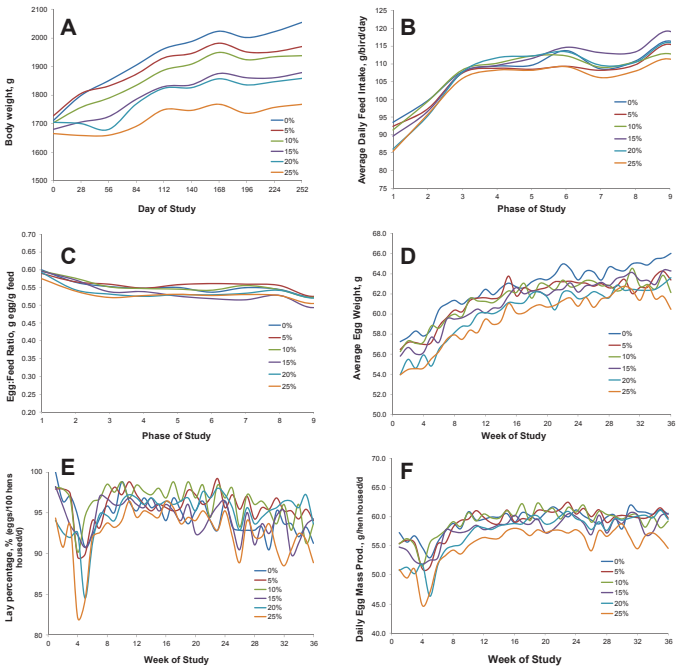

Figure 1. Effect of increasing dietary inclusion of expeller-pressed camelina meal on a) bird weight; b) feed intake; c) feed efficiency; d) average egg weight; e) lay percentage; and, f) daily egg mass production.

Implications

Expeller-pressed camelina meal supported acceptable productivity and would appear to be suitable as a feedstuff for high-producing laying hens.

Linear reductions in bird weight and average egg weight with increasing dietary inclusions of camelina meal suggest that further refinements to digestible nutrient estimates in this ingredient are needed to optimize use in layer diets.

Contact information

For more information about this project, please contact:

Dr. Eduardo Beltranena

Alberta Agriculture and Rural Development
e-mail: **eduardo.beltranena@gov.ab.ca**
Tel: **(780) 427-4567**